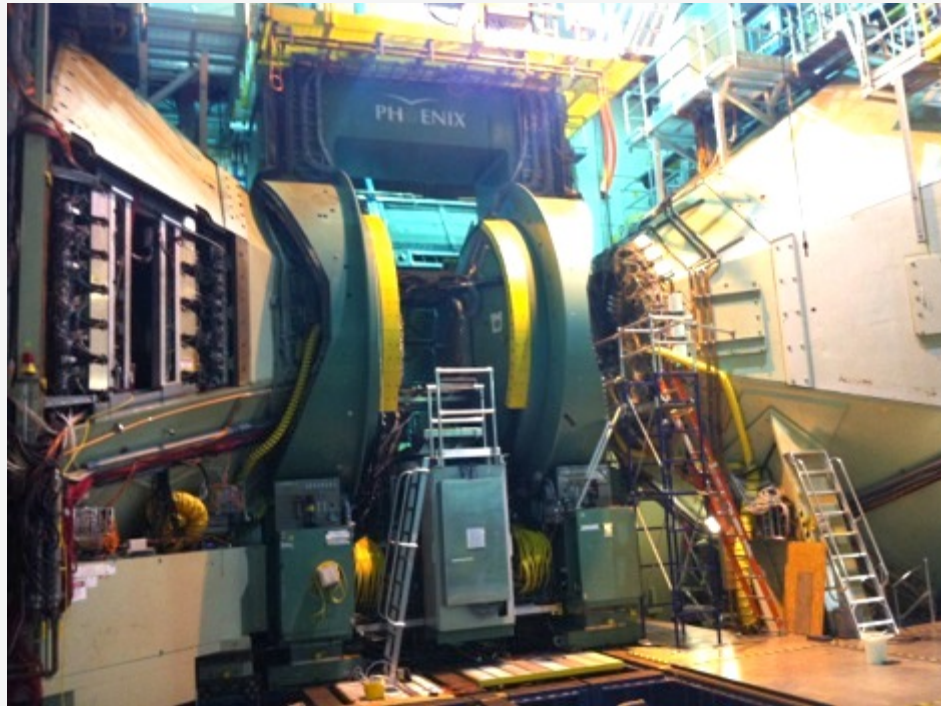


# PHENIX WEEKLY PLANNING



August 14, 2014  
Don Lynch

- Move CM South
- Finish Install of Station 1 North scaffold
- Continue prep for MPC-Ex North installation
- MPC North removal of failed modules repair/reinstall
- VTX/FVTX Repairs repairs continue
- Continue assembly of MPC-Ex North
- Continue sPHENIX support
  
- Saturday (8/16/2014) Electrical shutdown of 13.8 kV feeder:
  - All power to PHENIX except emergency power will be out from ~8:00 AM to 5:00 PM.
  - E. Desmond will power down PHENIX electronics before the end of the day Friday 8/15/14

## Next Week

- Continue prep for MPC-Ex North installation
- VTX/FVTX Repairs repairs continue
- F/VTX replace Teflon lines with stainless
- Continue assembly of MPC-Ex North
- Continue sPHENIX support

## 2014 planned Technical Support & 2014 Shutdown

Summer Sunday prep AH, tours and restore AH	Done
Remove scaffolding from sta 1 south, Move CM South	Done
Install scaffolding in Sta 1 North	Done
MuTr Sta 1 South troubleshooting and repairs	Done ?
Maint. & Repairs for MPC South, BBC South, RPC1 South1	Done?
Repair and reinstall FVTX/VTX East & West	in progress -10/15/2014
VTX/FVTX Upgrade cooling lines, chiller preventive maintenance	in progress-10/6/2014
Troubleshoot intermittent water leak in MMS	7/30- 8/8/2014
Other Maint. In MMS	7/30-8/29/2014
Assemble & test MPC-Ex North, ready for installation	in progress-9/5/2014
Electronic Cooling Water High Temp Alarm	8/11-8/29/2014
Prep MPC-Ex North installation area	8/8-8/15/2014
MuTr Sta 1 & Sta. North troubleshooting and repairs	8/11-9/5/2014
MPC North-remove damaged crystals, repair as necessary, re-install	8/11-9/5/2014
Install new MPC-Ex North, thoroughly test before moving CM north	9/8-9/26/2014
Reinstall MMS east vertical lampshade	9/2-9/5/2014
Assemble & test MPC-Ex South, ready for installation	9/2-10/3/2014

## 2014 planned Technical Support & 2014 Shutdown (cont'd)

Remove Sta 1 N scaffolds, Move CM North, Install scaffolding in Sta 1 S	9/29-10/3/2014
Install MPC-Ex South	10/6-10/24/2014
Reinstall, reconnect, re-survey and re-commission VTX/FVTX	10/16-11/26/2014
Other detector support	TBD
Infrastructure Maintenance and Improvement	TBD
Decommissioning of obsolete PHENIX detector equipment	TBD
sPHENIX Support	on-going
End of Shutdown Tasks (Move MS north, roll in EC , install collars, remove 10 ton cart, plates and manlifts, build shield wall, etc.)	10/27-11/26/2014
DC East & West maintenance & repairs	11/17-12/5/2014
Pink/White/Blue Sheets	12/1-12/19/2014
End of Shutdown Party	????
Start Flammable gas flow	????
Close shield wall, install radiation interlocks and prepare for run 14	12/31/2014
Start run 15	1/2/2015

## Muon Tracker Shutdown Work List – summer 2014

- testing as MPC-EX installed, particularly before closing Sta-1's
- **fix North Arcnet – N.2.7.1, North Sta-2 Oct-7 Chassis-1 (bad cable?) - Done**
- fix packets that were disabled for Run14
  - 11035,36 – South Sta-1 Quad-4 Chassis-3
  - **11267,68 – North Sta-2 Oct-7 Chassis-2 - Done**
- replace boards for most frequent FEM problems from run
  - 11195 - North Sta-1 Quad-3 Chassis-3?
    - might have already done this; check history (changed RX 3/14/12)
  - 11064 – South Sta-2 Oct-3 Chassis-3 - unreachable
- N341 HV trip problem?
- auto-reboots of ArcNet and iocondev's for calibration?
- Access needed:
  - South & North Sta-1
  - **Inside North Sta-2 on bottom Done**
- Main Issue – Manpower

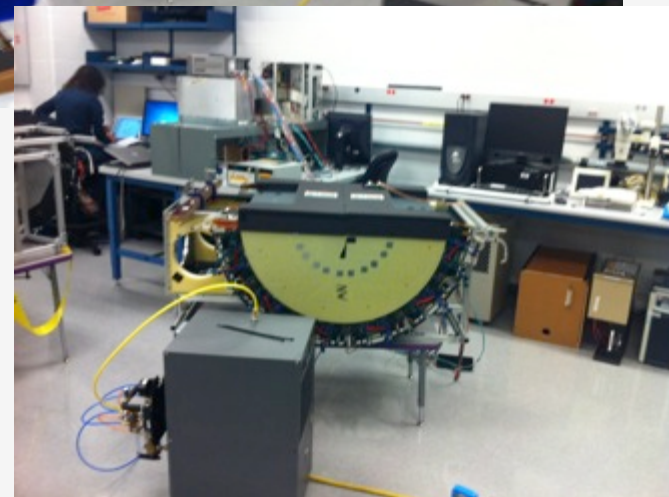
## Work Permits for 2014 Shutdown

- **Start of Shutdown - Done**
- **VTX/FVTX East - Done**
- **MPC-Ex - Done**
- **MuTr Sta 1 N & S - Done (scaffold agreement done)**
- **MuTr North station 2/3 - Done**
- **MuTr South station 2/3 & MMS South Water leak - Done**
- **MPC North - Done**
- DC East/West – need in November
- End of Shutdown – need in November





VTX/FVTX east & west repairs/  
upgrades under way



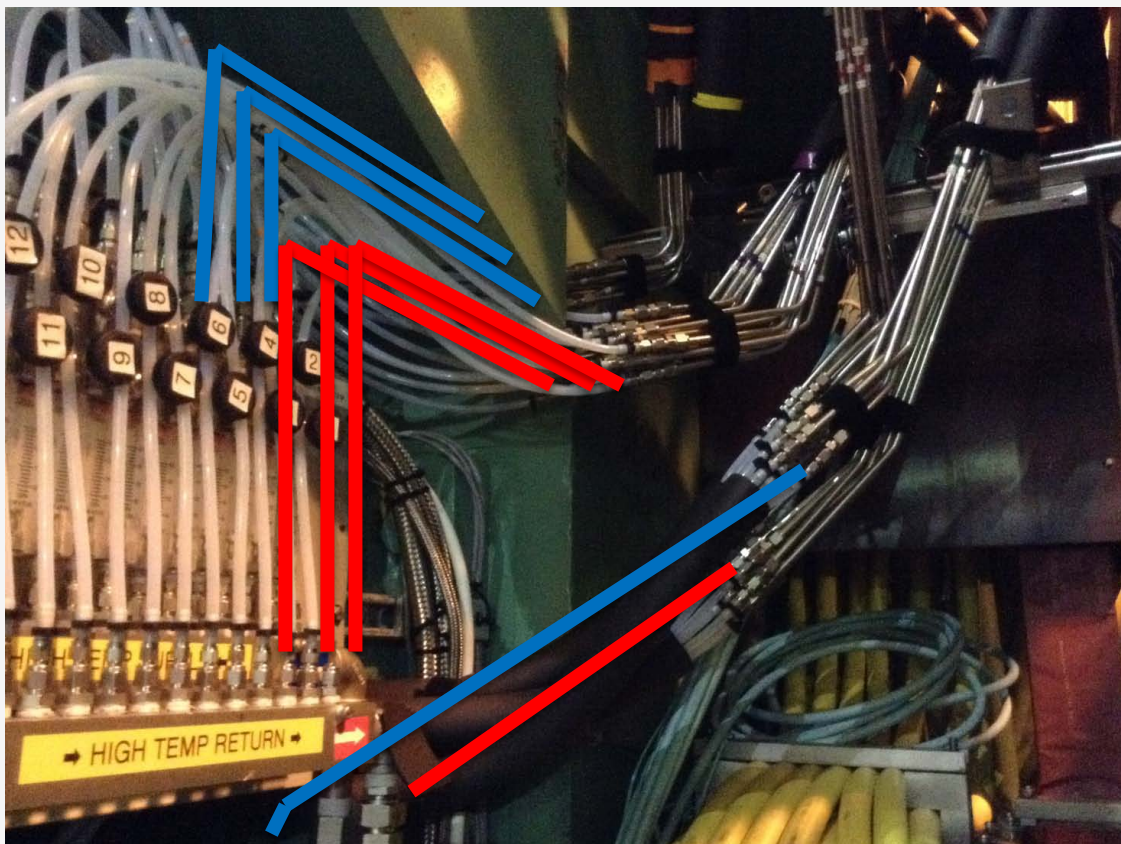
8/7/2014



Top manifold has 13 Supply and 13 return lines.  
Both North and south need to be replaced.

Bottom manifold has 9 Supply and 9 Return lines  
Both North and South need to be replaced

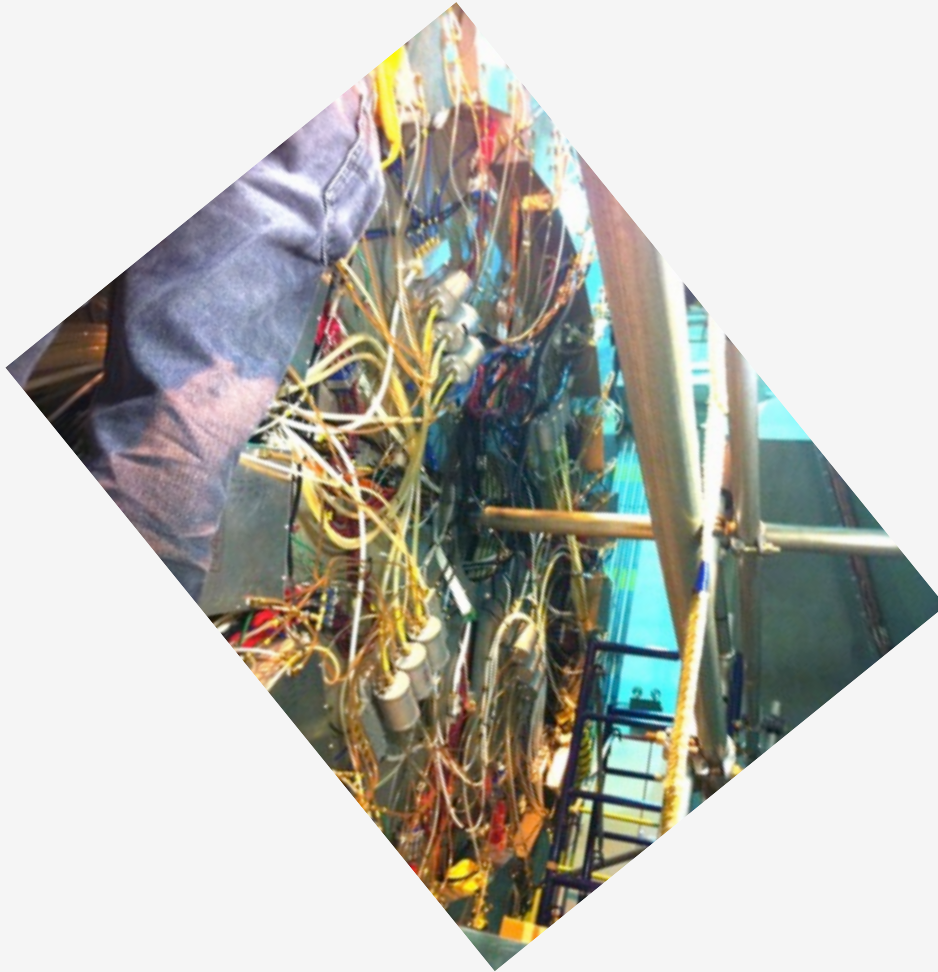
Current labeling on tubes needs  
to be maintained and copied to  
new lines



Bends need to be done  
carefully so not to  
restrict flow. Swage  
elbows can also be used  
for sharp bends

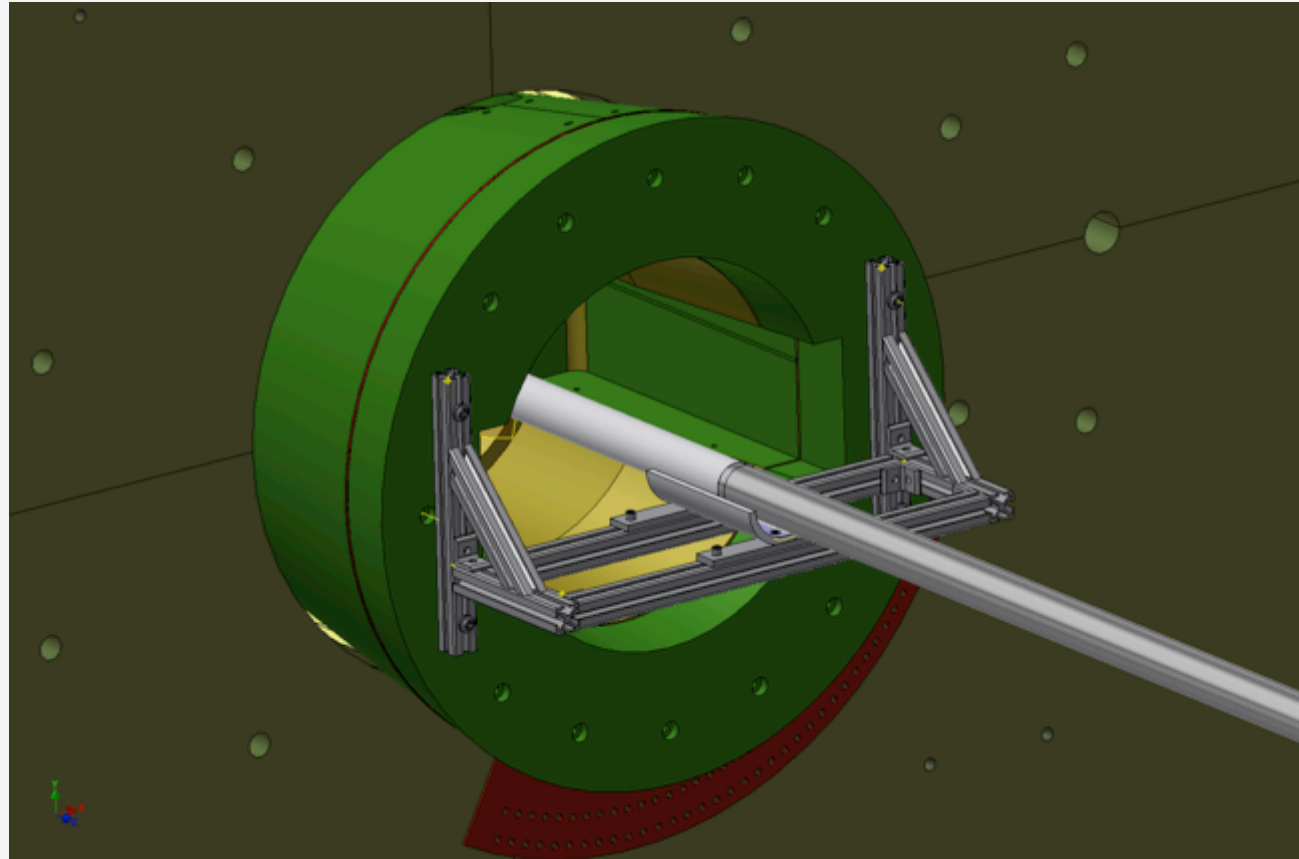
Replace All Teflon  
lines with 1/4" ID 316  
thin walled Stainless  
McMaster  
Coil: 89995K82  
Or Rigid with Min ID  
0.21" (89995K288)

MPC-Ex Prototype removed and relocated to 510



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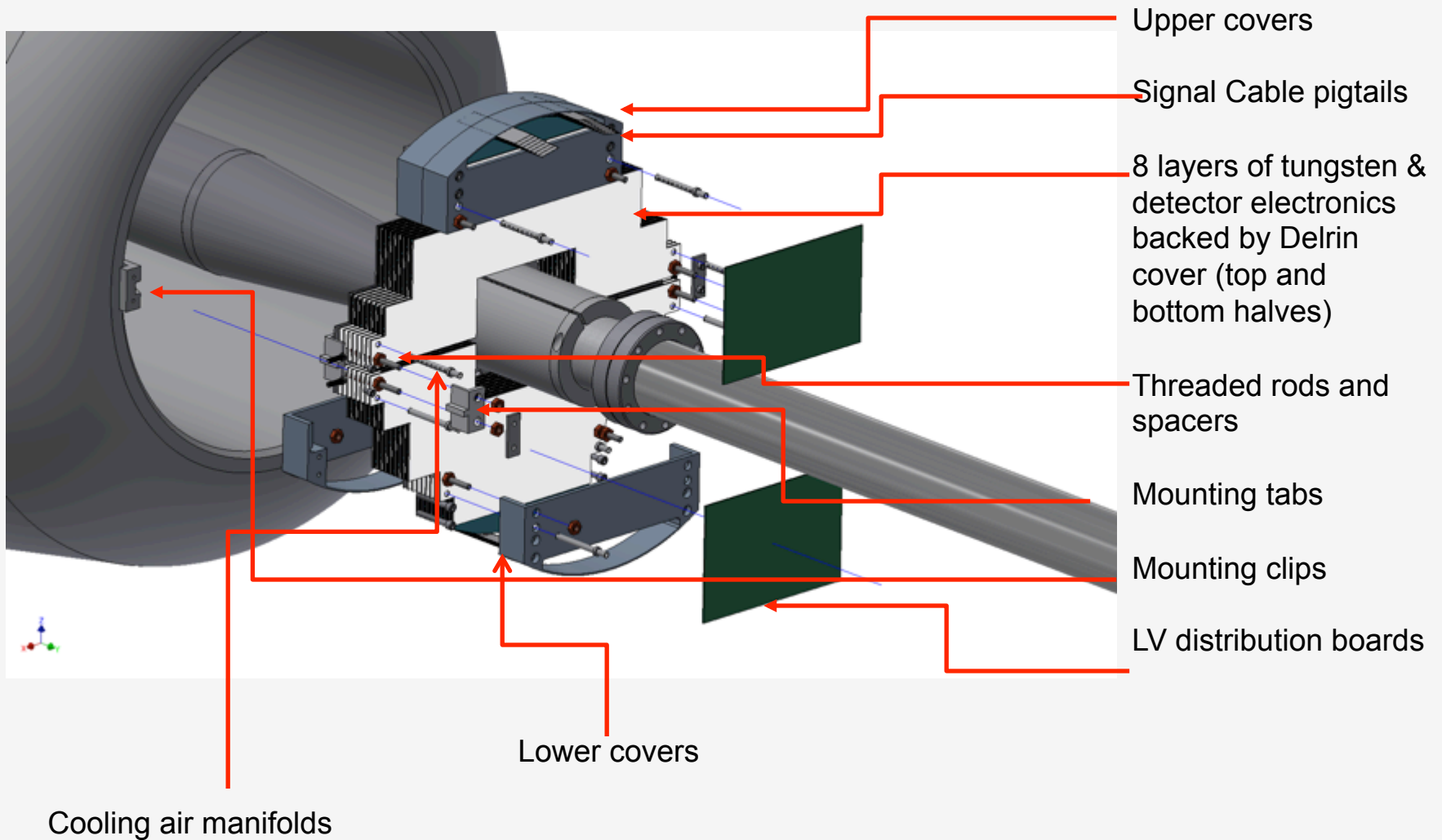
## MPC-Ex North & South



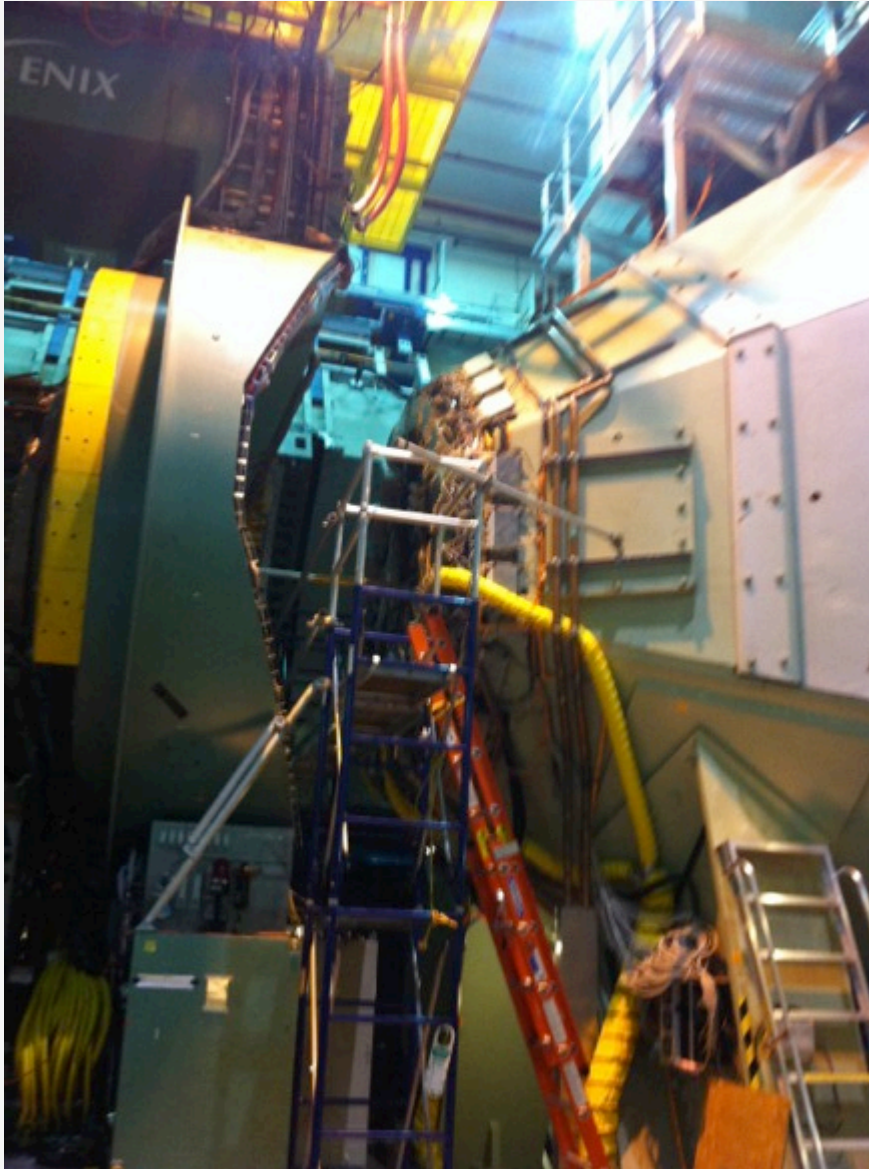
MPC-Ex North Beam pipe temporary support

# MPC-Ex Exploded view

TECHNICAL SUPPORT NO. 4







Scaffolding moved  
to north station 1

MPC-Ex North Prep  
is underway

8/7/2014

# MPC-EX Fabrication Status

- Micromodule Fabrication and Testing (BNL/SB)
  - 192 modules required per MPC-EX arm (384 total)
  - As of 8/6 a total of 216 micromodules have been assembled:
    - 146 micromodules wire bonded and tested
      - Of these 129 are “good” – good leakage current and no dead areas
      - Of remaining 17 - 6 “dead”, 2 have confirmed dead areas, 11 require additional testing
    - 70 micromodules in wire bonding 8/6-8/7
    - Sufficient micromodules on hand for MPC-EX N very soon
- Sensor Testing and Delivery
  - Sensor testing limiting factor this week
    - Youngil will deliver 50 tested sensors next week 8/9, giving ISU time to catch up
  - Total delivery will be 440 sensors + >40 additional “2<sup>nd</sup> class” sensors (slightly higher leakage current)
  - Additional 100 ROCs have been ordered, sufficient parts on hand to “overproduce” to account for losses at various production stages.
- Carrier Boards
  - Nikki and Sarah pulling together boards and tungsten for lamination (Mike L.?)

# MPC-EX Electronics

- Added Chuck Pancake and Maki to FEM design/firmware
- Rev0 FEM is being used for FPGA development but not acceptable for final detector:
  - Choice of FPGA pins for LVDS not consistent with mfg. specification
  - Some wire-mod error correction
  - Change in design of readout cable routing and slow controls connection
  - Underway at ISU, re-route by 8/8, finalize and send out for production week of 8/11 (10-day turn-around)
- FEM P/S Board in Production
- Electronics Box Mock-Up Underway (Sarah Campbell)
- Remaining Elements:
  - RPi to LVDS for FEM connection (need designer, Andrey?)
  - Cable interconnect (L/R styles – Sal? Just settled last week...)
- Electronics for the North Arm are going to come in at the last minute...



# MPC-EX Outstanding Issues

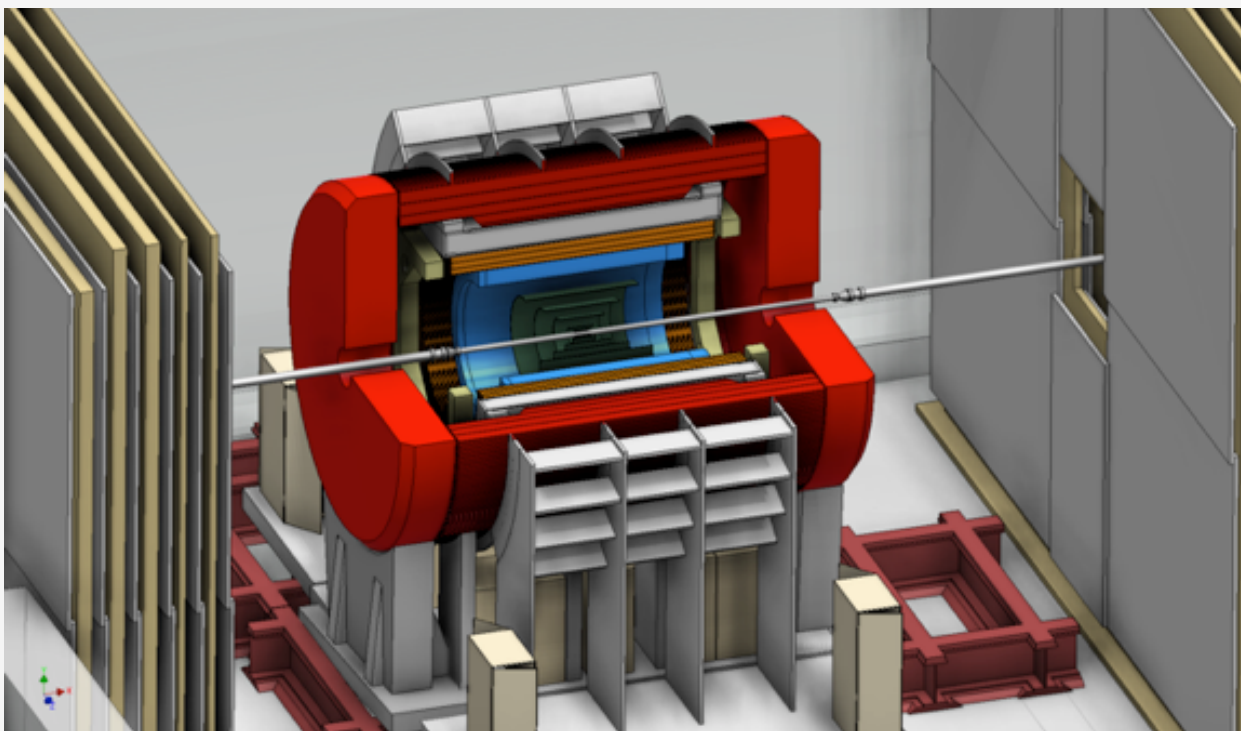
- Lots of work on the electronics, very little time left....
- A bit worried about micromodule yields after assembly. Added SVX4 channel test to ROC testing to better qualify ROCs.
  - No way to test encapsulated SVX4 wire bonds prior to assembly
- Working to understand leakage current rise as a function of radiation damage:
  - Youngil has numbers based on testing in Korea.
  - Measuring Run-14 modules, compare before and after...

## Electronics Cooling Water High Temperature Alarm

Display showing temperature of cooling water

Add Alarm to Panel





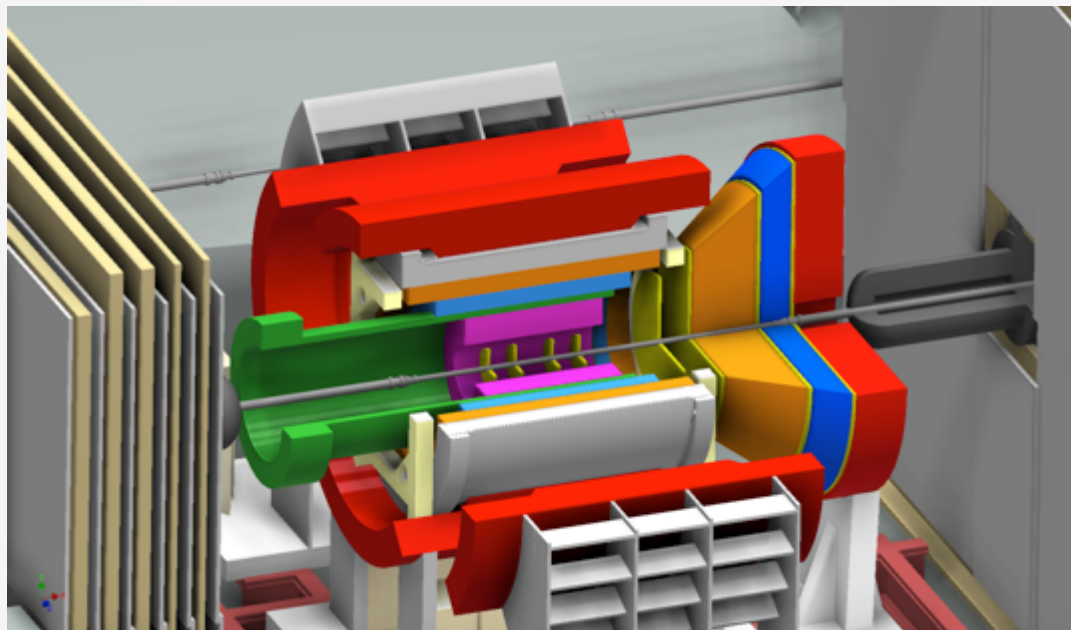
# Magnet Update

- Review with Pasquale Fabbriatore, Wesley Craddock, and Mike Racine uncovered only one loose end (need to secure leads inside valve box)
  - Paul Kovach has now designed a couple of additional fixtures to stabilize the leads
- In the meantime, Mike Racine has completed crating all the other equipment at SLAC
- DOE paperwork for the move is complete
- CAST is chosen for transport, contract in place waiting for data; air-ride truck, no additional suspension
- Accelerometers and GPS tracking
- Arranging to send team to SLAC before Sep 10
- Review of critical lift being coordinated by Dave Phillips
- Work Planning for both SLAC and BNL ends of the trip needed
- (When the Magnet gets here we stop referring to it as the BABAR Magnet and begin referring to it as the sPHENIX Magnet)

# sPHENIX Design

- No recent changes to envelope drawings
  - Expect to add support structure envelop
  - Inner support structure plan is evolving
- sPHENIX Assembly Plan in development
- Design Specification Documents being prepared for:
  - 1) **Global system (includes decommissioning, infrastructure & installation)**
  - 2) **HCal Outer**
  - 3) **HCal Inner**
  - 4) **EMCal**
  - 5) **Calorimeter Electronics**
  - 6) **DAQ/Trigger**
  - 7) **Tracker**
  - 8) **Magnet**

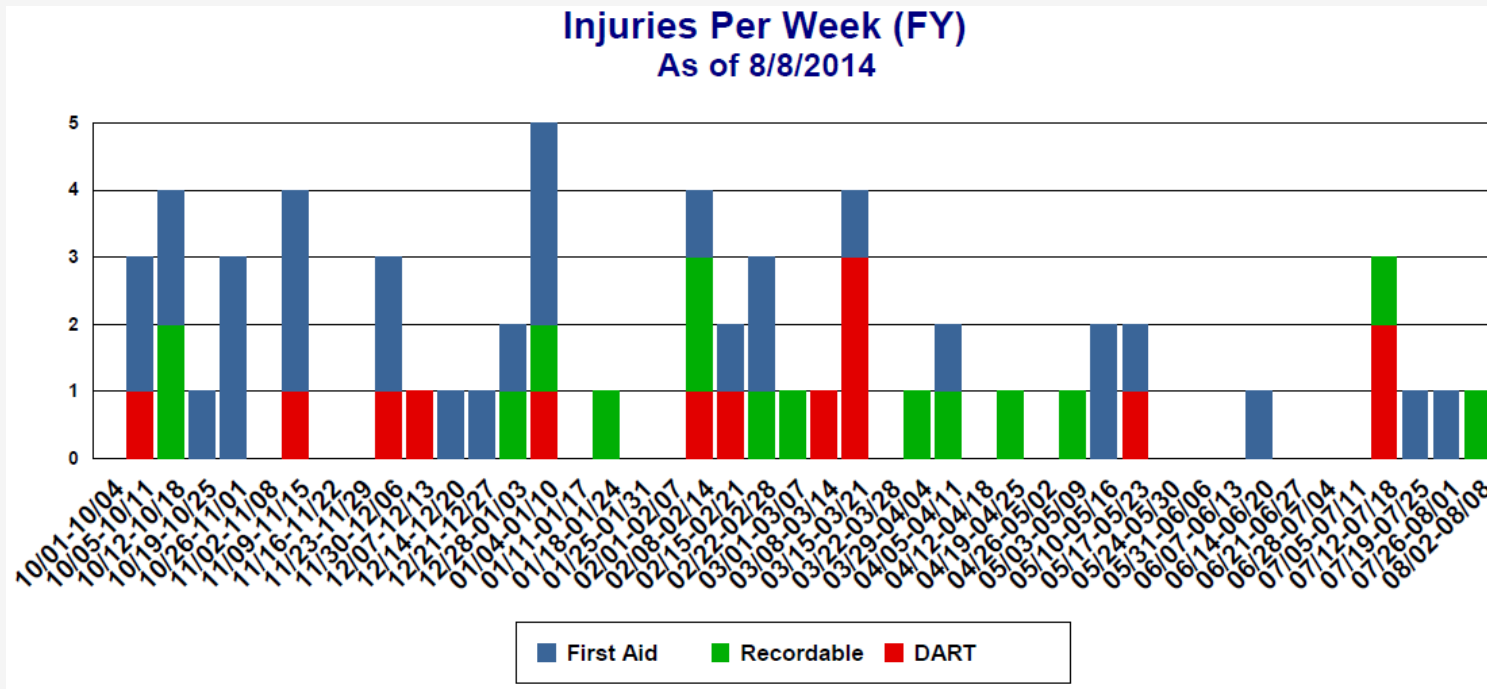
ePHENIX



From Ray Karol:

Human Performance tip: "It's better to keep your mouth shut and appear stupid than open it and remove all doubt"





**Injury Status:**

FY14 YTD: DART – 14, TRC – 29, First Aid – 31

FY13: DART – 16, TRC – 38, First Aid – 53

FY12: DART – 19, TRC – 36, First Aid – 69

FY13 Injury Listing: <https://intranet.bnl.gov/esh/shsd/seg/OccInj/BNLInjuries.aspx>

**Recent Injuries**

8/4/14	Recordable	An employee was stung on the finger by a yellow jacket in his office. At the OMC, first aid was given.
7/18/14	Recordable	An employee was turning a valve while making some machine adjustments and injured his elbow. At the OMC, first aid was given and the employee returned to full duty. Update: Later the employee was given a prescription for Physical Therapy making this a recordable case.



8/7/2014

## Recent Events

8/1/14	SC-BNL	Facilities & Operations (F&O) was preparing to remove a strobic fan from the roof of Building 480. In order to remove the equipment, the BNL Riggers had set up a mobile crane (boom was extended and hook lowered to the area of the lift) and cordoned off a safe area with red "DANGER" tape. During the F&O safety briefing, an employee from the Condensed Matter Physics Department approached the red "DANGER" tape from the parking lot and began to walk under the barrier. Multiple F&O staff called out to the employee instructing him to stop. The employee continued to enter the building, despite being followed by F&O staff that continued to request that he stop. It is important to note that the removal of the strobic blower had not yet begun and no overhead hazard was present at the time of the incident. No injuries or damage occurred as a result of this incident. ( <a href="#">Event Link</a> )
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8/7/2014



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## Where To Find PHENIX Engineering Info

*2014 Shutdown Continues !*



*24 days 'till the season opener vs. Oakland*

[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_SSint-page.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm)

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